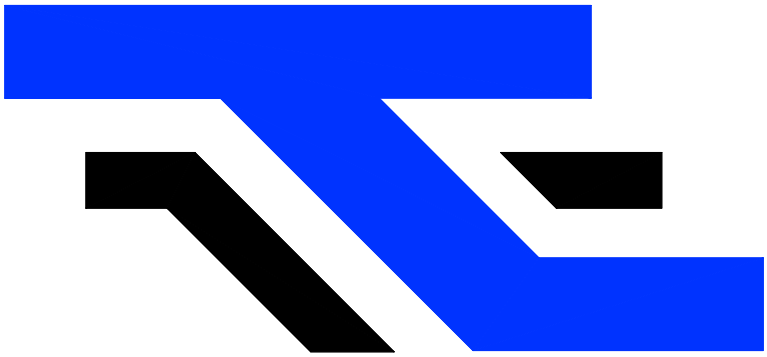

Chapter 2
National Technology Content Standards & Show-Me Standards

MISSOURI TECHNOLOGY EDUCATION GUIDE
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National Technology Content Standard [1]
Missouri Show-Me Standards [2]

1. Introduction: What Are Standards?

A "standard" is a description of something you want a student to learn, a well-defined goal. The phrase educators like to use is something a student will "know and be able to do." Teachers should use standards to make decisions about what to teach. Standards tell teachers, students, parents, and administrators what students are expected to know at the end of the teaching and learning process. Teachers should examine everything they do with this question in mind: "Is what I'm teaching part of what we have agreed we want students to know?"

2. Who Developed Standards?

Most curricular area professional organizations have developed national standards and most states have developed state standards. The International Technology Education Association (ITEA) through the Technology For All Americans Project (TFAAP), has developed twenty standards for technological literacy. The Missouri Department of Elementary and Secondary Education (MODESE) has developed the Show-Me Standard. Both sets of standards are extremely important for all Missouri students.

3. Technology Education [1]

Standards for Technological Literacy: Content for the Study of Technology

The Standards were published by the International Technology Education Association and the Technology for All Americans Project in April 2000. It defines what students should know and be able to do in order to be technologically literate and provides standards that prescribe what the outcomes of the study of technology in grades K – 12 should be. However, it does not put forth a curriculum to achieve these outcomes. Technology Content Standards will help ensure that all students receive an effective education about technology by setting forth a consistent content for the study of technology.

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[1] Source: http://www.iteawww.org/TAA/STLstds.htm ITEA Web Site
[2] Source: http://www.dese.state.mo.us/standards/index.html MODESE Web Site

Why are Technology Content Standards (TCS) important?

ITEA suggests the following reasons why TCS is important:

- Technological literacy enables people to develop knowledge and abilities about human innovation in action.
- Technology Content Standards establishes the requirements for technological literacy for all students – kindergarten through grade 12.
- Technology Content Standards provides qualitative expectations of excellence for all students.
- Effective democracy depends on all citizens participating in the decision-making process. Because so many decisions involve technological issues, all citizens need to be technologically literate.
- A technologically literate population can help our nation maintain and sustain economic progress.

The ITEA offers five guiding principles behind the Technology Content Standards:

- They offer a common set of expectations for what students should learn in the study of technology.
- They are developmentally appropriate for students.
- They provide a basis for developing meaningful, relevant, and articulated curricula at local, state, and provincial levels.
- They promote content connections with other fields of study in grades K – 12.
- They encourage active and experiential learning.

Who is a technologically literate person?

A person that understands, with increasing sophistication, what technology is, how it is created, how it shapes society, and in turn is shaped by society is technologically literate. He or she can hear a story about technology on television or read it in the newspaper and evaluate its information intelligently, put that information in context, and form an opinion based on it. A technologically literate person is comfortable with and objective about the use of technology, neither scared of it nor infatuated with it.

Technological literacy is important to all students in order for them to understand why technology and its use is such an important force in our economy. Anyone can benefit by being familiar with it. Everyone from corporate executives to teachers to farmers to

homemakers will be able to perform their jobs better if they are technologically literate. Technological literacy benefits students who will choose technological careers, future engineers, aspiring architects, and students from many other fields. They can have a head start on their future with an education in technology.

What is included in Technology Content Standards? There are 20 standards that specify what every student should know and be able to do in order to be technologically literate. The benchmarks that follow each of the broadly stated standards at each grade level articulate the knowledge and abilities that will enable students to meet the respective standards. A copy of the Technology Content Standards can be obtained from the International Technology Education Association, 1914 Association Drive, Suite 201, Reston, Virginia, 20191-1539. The ITEA web site, http://www.iteawww.org, also provides a copy of the standards on line. The following is a list of the 20 standards abbreviated:

Nature of Technology

1. The Characteristics and Scope of Technology
2. The Core Concepts of Technology
3. Relationships Among Technologies and the Connections Between Technology and other fields

Technology and Society

4. The Cultural, Social, Economic, and Political Effects of Technology
5. The Effects of Technology on the Environment
6. The Role of Society in the Development and Use of Technology
7. The Influence of Technology on History

Design

8. The Attributes of Design
9. Engineering Design
10. The Role of Troubleshooting, Research and Development, Invention and innovation, and Experimentation in Problem Solving

Abilities for a Technological World

11. Apply Design Process
12. Use and Maintain Technological Products and Systems
13. Assess the Impact of Products and Systems

The Design World

14. Medical Technologies
15. Agricultural and Related Biotechnologies
16. Energy and Power Technologies
17. Information and Communication
18. Transportation Technologies
19. Manufacturing Technologies
20. Construction Technologies

4. Missouri Show-Me Standards [1]

All Missourians are eager to ensure that graduates of Missouri's public schools have the knowledge, skills and competencies essential to leading productive, fulfilling and successful lives as they continue their education, enter the workforce and assume their civic responsibilities. Schools need to establish high expectations that will challenge all students to reach their maximum potential. To that end, the Outstanding Schools Act of 1993 called together master teachers, parents and policy-makers from around the state to create Missouri academic standards. These standards are the work of that group.

The academic standards incorporate and strongly promote the understanding that active, hands-on learning will benefit students of all ages. By integrating and applying basic knowledge and skills in practical and challenging ways across all disciplines, students experience learning that is more engaging and motivating. Such learning stays in the mind long after the tests are over and acts as a springboard to success beyond the classroom.

These standards for students are not a curriculum. Rather, the standards serve as a blueprint from which local school districts may write challenging curriculum to help all students achieve their maximum potential. Missouri law assures local control of education. Each school district will determine how its curriculum will be structured and the best methods to implement that curriculum in the classroom.

Missouri students must build a solid foundation of factual knowledge and basic skills in the traditional content areas. The statements listed in the Show – Me Standards represent such a foundation in reading, writing, mathematics, world and American history, forms of government, geography, science, health/physical education and the fine arts. This foundation of knowledge and skills are also incorporated into courses in vocational education and practical arts such as Technology Education. Students should acquire this knowledge base at various courses of study. Each grade level and each course sequence should build on the knowledge base that students have previously acquired.

There are two parts to the Show – Me Standards, Knowledge Standards and Performance Standards. Knowledge Standards cover the academic areas of Communication Arts, Mathematics, Science, Social Studies, Fine Arts, and Health & Physical Education. Performance Standards cover four goals: Goal 1. Students in Missouri public schools will acquire the knowledge and skills to gather, analyze and apply information and ideas; Goal 2. Students in Missouri public schools will acquire the knowledge and skills to communicate effectively within and beyond the classroom; Goal 3. Students in Missouri public schools will acquire the knowledge and skills to recognize and solve problems; Goal 4. Students in Missouri public schools will acquire the knowledge and skills to make decisions and act as responsible members of society. The entire "Place Mat" for the Missouri Show – Me Standards can be found at the web site: http://www.dese.state.mo.us/standards/index.html

Crosswalk Between the Missouri Show – Me Standards and The Technology Content Standards

Technology education teachers have the same professional responsibility to implement and hold their students accountable for the Missouri Show – Me Standards as does all other academic teachers. In addition, technology education teachers have the professional responsibility to implements and hold their students accountable for the national Standards for Technological Literacy: Content for the Study of Technology. There need not be a conflict between the two sets of standards. As pointed out in the narrative of the Missouri Show – Me Standards document, the practical arts domain is a part of and has a responsibility for the delivery of the Show – Me Standards.

The tables demonstrate the crossover from each standard and may be linked by clicking here: Crosswalks. When the technology education teacher develops their "standards-based" curriculum, both the Show – Me Standards and the Technology Content Standards must be considered simultaneously. The most obvious and the easiest crossover is in the Performance Goal.